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(54) POSITIVE TYPE PHOTSENSITIVE COMPOSITION AND IMAGE FORMING METHOD

(57)Abstract:

PURPOSE: To obtain (1) the positive type photosensitive composition using a photopolymerizable compound and (2) the positive type photosensitive composition high in photosensitivity and improved in film endurance using a quinonediazido compound.

CONSTITUTION: The photosensitive composition to be used comprises 2 kinds of photosensitive compositions and (1) a first positive type photosensitive composition developable with an aqueous alkaline solution contains (a) a polymer having vinylcarboxylic ester units in the molecule, (b) at least one of (meth) acrylate esters and (meth)acrylic acids, and (c) a compound to be allowed to release free radicals by light irradiation; and (2) a second positive type photosensitive composition contains (A) the quinonediazido compound, (B) at least one of (meth)acrylate esters and (meth)acrylic acids in an amount of 1-40weight% based on (A), and (C) a compound to be allowed to release free radicals by light irradiation.

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CLAIMS

[Claim(s)]

[Claim 1] (a) High-molecular-compound $\text{RCOOCH}=\text{CH}_2$ which has the carboxylic-acid vinyl-ester polymerization unit shown by the following general formula in the molecular structure, however R express the alkyl group of carbon numbers 1-17.

(b) The positive-type photosensitivity constituent characterized by containing the compound which generates a radical by at least one sort of (Compound c) light irradiation chosen as arbitration from the compound group which consists of an acrylic acid, a methacrylic acid, an acrylic ester, and a methacrylic ester.

[Claim 2] (A) A quinone diazide compound, the positive-type photosensitivity constituent characterized by containing the compound which generates a radical by at least one sort of (Compound C) light irradiation chosen as arbitration from the compound group which consists of 1 - 40% of the weight of an acrylic acid, a methacrylic acid, an acrylic ester, and a methacrylic ester to 100 % of the weight of (B) quinone diazide compounds.

[Claim 3] The image formation method characterized by developing negatives with an aqueous alkali developer and acquiring a positive-type picture after exposing a photosensitive constituent according to claim 1.

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DETAILED DESCRIPTION

[Detailed Description of the Invention]

[0001]

[Industrial Application] this invention relates to the image formation method which used the photosensitive constituent and the photosensitive constituent. this invention can be used as the transfer picture formation method of the photosensitive constituent of the color proof for color proofreading for example, in color printing, and a color proof.

[0002]

[Description of the Prior Art] The thing using the quinone diazide compound as a positive-type photosensitivity constituent is known from before. It has been a technical problem that this kind of thing raises sensitivity further. Moreover, when this kind of constituent is used for image formation material, for example, a color proof, residual membrane improvement of the non-streak section is a technical problem.

[0003] Conventionally, the following proposals are made as high-sensitivity-izing and residual membrane improvement technology.

** Add an organic acid and an inorganic acid (for example, U.S. Pat. No. 4,115,128, JP,2-213847,A). However, this technology produces film decrease of a photosensitive layer, or is accompanied by unarranging -- development latitude is narrow.

** Change the resinous principle of a binder (for example, JP,2-55359,A). However, with this technology, it becomes insufficient [coat intensity] and does not become radical solution.

[0004] On the other hand, the photopolymerization nature constituent is known and to constitute a negative-mold photosensitivity constituent using this conventionally is tried. A photopolymerization nature constituent is because the exposure section carries out optical hardening by exposure, and it can remain after this portion's developing negatives and can therefore consider as the negative-mold photosensitivity constituent with which the inverse image (reversal image) of a manuscript film is obtained after exposure development.

[0005] Conventionally, taking advantage of the feature of a photopolymerization nature constituent, a thing called development of the constituent of a positive type with which the normal image of a manuscript is obtained was not tried, using a photopolymerization nature constituent. A photopolymerization nature constituent has the premise of hardening by exposure and remaining, and this is considered that such development was not tried. Moreover, the photosensitive constituent of the positive type from which the normal image of a manuscript is obtained with a photopolymerization nature constituent was not actually found out conventionally.

[0006]

[Objects of the Invention] Invention of the claim 1 of this application is the photosensitive constituent which used the compound of photopolymerization nature, and the exposure section is removed in development and it aims at offering the positive-type photosensitivity constituent which remains after the unexposed section's developing negatives.

[0007] Invention of the claim 2 of this application is the positive-type photosensitivity constituent which

used the quinone diazide compound, and sensitivity is high and it aims at offering the photosensitive constituent with which the residual membrane was improved.

[0008] Invention of the claim 3 of this application aims at offering the image formation method that a positive picture can be acquired, using the compound of photopolymerization nature.

[0009]

[Means for Achieving the Goal] High-molecular-compound $\text{RCOOCH}=\text{CH}_2$ which has the carboxylic-acid vinyl-ester polymerization unit invention of the claim 1 of this application is indicated to be by the (a) following general formula in the molecular structure, however R express the alkyl group of carbon numbers 1-17.

(b) It is the positive-type photosensitivity constituent characterized by containing the compound which generates a radical by at least one sort of (Compound c) light irradiation chosen as arbitration from the compound group which consists of an acrylic acid, a methacrylic acid, an acrylic ester, and a methacrylic ester, and this composition attains the purpose mentioned above.

[0010] Invention of the claim 2 of this application receives (A) quinone diazide compound and 100 % of the weight of (B) quinone diazide compounds. It is the positive-type photosensitivity constituent characterized by containing the compound which generates a radical by at least one sort of (Compound C) light irradiation chosen as arbitration from the compound group which consists of 1 - 40% of the weight of an acrylic acid, a methacrylic acid, an acrylic ester, and a methacrylic ester, and this composition attains the purpose mentioned above.

[0011] Invention of the claim 3 of this application is the image formation method characterized by developing negatives with a water alkali developer and acquiring a positive-type picture after exposing a photosensitive constituent according to claim 1, and attains the purpose mentioned above by this composition.

[0012] According to invention of a claim 1, the new photosensitive constituent which forms a positive picture to the conventional photopolymerization system photosensitivity constituent having been what forms a negative picture (that is, thing from which the exposure section carries out optical hardening, and turns into the streak section) though it is a photopolymerization system photosensitivity constituent can be offered.

[0013] In invention of a claim 1, the photopolymerization constituent which contained at least one sort of compounds chosen as arbitration as a polymerization nature compound, and constituted them from a compound group which consists of the acrylic acid which is the (b) component, a methacrylic acid, an acrylic ester, and a methacrylic ester forms a positive picture. It was not known conventionally that the compound of this (b) component is what has the capacity which can form a positive picture though it is a photopolymerization nature compound (as mentioned above).

[0014] The positive-type photosensitivity constituent of invention of a claim 1 can be used for various kinds of image formation material. For example, it can use for the photosensitive lithography version, water-less lithography, etc. preferably. It can especially use preferably as a photosensitive constituent for the coloring image formation for color proofs.

[0015] According to invention of a claim 3, by using the photosensitive constituent of a claim 1, if it is possible to form a positive picture, it is closed with a photopolymerization system photosensitivity constituent.

[0016] Since according to invention of a claim 2 it is the photosensitive constituent of quinone diazide compound content by specified quantity combination ***** about at least one sort of compounds chosen as arbitration from the compound county which changes from the acrylic acid which is the (B) component, a methacrylic acid, an acrylic ester, and a methacrylic ester to the quinone diazide compound which is the (A) component, and high-sensitivity-izing and residual membrane improvement were attained and the positive-type photosensitivity constituent without un-arranging, such as a coat on-the-strength fall, was obtained It is.

[0017] The positive-type photosensitivity constituent of invention of a claim 2 can be used for various kinds of image formation material. For example, it can use for the use of water-less lithography, a marking film, etc. preferably. It can especially use preferably as a photosensitive constituent of charges

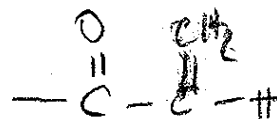
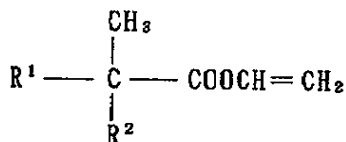
of transfer picture formation material, such as the photosensitive lithography version and a color proof. [0018] Each invention is explained below. After describing invention of a claim 1 first and describing invention of the expedient upper claim 3 of explanation subsequently, invention of a claim 2 is explained.

[0019] Although the high molecular compound which is the (a) component which the photosensitive constituent of invention of a claim 1 contains may function as a binder in a constituent, this is a high molecular compound which has the carboxylic-acid vinyl-ester polymerization unit shown by the following general formula in the molecular structure.

$\text{RCOOCH}=\text{CH}_2$, however R express the alkyl group of carbon numbers 1-17.

[0020] If it is the high molecular compound of the above structures, although it can use arbitrarily, as a carboxylic-acid vinyl-ester monomer for constituting the polymerization unit shown by the above-mentioned general formula, the thing of the following instantiation is desirable. A name and a chemical formula are written together and shown.

[0021] (1) Vinyl acetate $\text{CH}_3 \text{ COOCH}=\text{CH}_2$ (2) propionic-acid vinyl $\text{CH}_3 \text{ CH}_2 \text{ COOCH}=\text{CH}_2$ (3) butanoic-acid vinyl $\text{CH}_3 \text{ 2 (CH}_2 \text{) COOCH}=\text{CH}_2$ (4) vinyl pivalate A 3 $\text{CCOOCH}=\text{CH}_2$ (5) caproic-acid vinyl (CH₃) A CH₃ 4 (CH₂) $\text{COOCH}=\text{CH}_2$ (6) caprylic-acid vinyl A CH₃ 6 (CH₂) $\text{COOCH}=\text{CH}_2$ (7) capric-acid vinyl A CH₃ 8 (CH₂) $\text{COOCH}=\text{CH}_2$ (8) lauric-acid vinyl A CH₃ 10 (CH₂) $\text{COOCH}=\text{CH}_2$ (9) myristic-acid vinyl CH₃ 12 (CH₂) $\text{COOCH}=\text{CH}_2$ (10) palmitic-acid vinyl CH₃ 14 (CH₂) $\text{COOCH}=\text{CH}_2$ (11) stearin-acid vinyl CH₃ 16 (CH₂) $\text{COOCH}=\text{CH}_2$ (12) BASA tic acid vinyl [Formula 1]



(R^1 , R^2 はアルキル基で、その炭素数の和は7である。

即ち $\text{R}^1 + \text{R}^2 = \text{C}_7 \text{H}_{14}$ の形になる)

[0022] As a carboxylic-acid vinyl-ester monomer, the thing of 1-4 has the still more desirable carbon number which constitutes the principal chain of a carboxylic acid. Especially, vinyl acetate is desirable.

[0023] In addition, the vinyl ester of a substitution carboxylic acid is also included by Above R per polymerization, also including the alkyl group which has a substituent.

[0024] The polymer to which the polymerization of the one sort of a carboxylic-acid vinyl ester was carried out is sufficient as a high molecular compound, and the polymer to which copolymerization of the two or more sorts of a carboxylic-acid vinyl ester was carried out is sufficient as it, and it may be a copolymer in the arbitrary component ratios of a carboxylic-acid vinyl ester, this, and other monomers that may be copolymerized.

[0025] As a vinyl system monomeric unit Ethylene system unsaturation olefins, such as **, for example, ethylene, a propylene, an isobutylene, a butadiene, and an isoprene For example, styrene, such as styrene, an alpha methyl styrene, p-methyl styrene, and p-chloro styrene For example, acrylic acids, for example, an itaconic acid, such as an acrylic acid and a methacrylic acid Unsaturation aliphatic dicarboxylic acids, for example, a diethyl maleate, such as a maleic acid and a maleic anhydride A dibutyl maleate, maleic-acid G 2-ethylhexyl, a fumaric-acid dibutyl, The diesters of unsaturation dicarboxylic acids, such as fumaric-acid G 2-ethylhexyl For example, a methyl acrylate, an ethyl acrylate, acrylic-acid n-butyl, Isobutyl acrylate, an acrylic-acid dodecyl, acrylic-acid 2-chloro ethyl, An acrylic-acid phenyl, alpha-chloro methyl acrylate, a methyl methacrylate, alpha-methylene aliphatic monocarboxylic-acid ester, such as an ethyl methacrylate For example, amides, such as nitril, for example, an acrylamide etc., such as acrylonitrile and meta-acrylonitrile For example, an acrylic anilide, p-chloro acrylic anilide, m-nitroglycerine acrylic anilide, Anilides, for example, the methyl vinyl ether, such as m-methoxy acrylic anilide Vinyl ether, such as ethyl vinyl ether, an isobutyl vinyl ether, and

beta-chloro ethyl vinyl ether A vinyl chloride, vinylidene chloride, and vinylidene cyanide, for example, 1-methyl-1-methoxy ethylene, 1 and 1-dimethoxyethylene, 1, 2-dimethoxyethylene, 1, and 1-dimethoxy carbonyl ethylene, There are vinyl system monomers, such as N-vinyl compounds, such as ethylene derivatives, for example, N-vinyl pyrrole, such as 1-methyl-1-nitroglycerine ethylene, N-vinylcarbazole, N-vinyl indole, N-vinyl pylori DIN, and N vinylpyrrolidone. These vinyl system monomers will exist in a high molecular compound with the structure in which the unsaturation double bond generally clove.

[0026] When using the high molecular compound expressed with the above-mentioned general formula in this invention, especially a desirable thing has a vinyl acetate polymerization unit in the molecular structure. the inside of it -- a vinyl acetate polymerization unit -- 40 - 95wt% -- what it has, and number average molecular weight (MN) The thing of 5,000-500,000 has the thing of 1,000-100,000, and desirable weight average molecular weight (MW).

[0027] Furthermore, the high molecular compound which has a long-chain carboxylic-acid vinyl-ester polymerization unit preferably from a vinyl acetate polymerization unit (especially this is a 40 - 95wt% thing) and vinyl acetate is good, and especially number average molecular weight (MN) is 2,000-60,000, and weight average molecular weight (MW). The thing of 10,000-150,000 is desirable.

[0028] In this case, as a monomer which constitutes the high molecular compound which copolymerizes with vinyl acetate and has a vinyl acetate polymerization unit, if a copolymer can be formed, it is arbitrary, for example, can be chosen as arbitration from the monomers of the above-mentioned instantiation.

[0029] The copolymer which can be used for below as a high molecular compound in this invention is listed by showing the monomer component. However, although it is natural, it is not restricted to the following instantiation.

[0030] (1) A vinyl acetate-acrylic ester (2) Vinyl acetate-maleate (3) Vinyl acetate-ethylene (4) Vinyl acetate-carboxylic-acid vinyl ester (5) Vinyl acetate-styrene (6) Vinyl acetate-crotonic acid (7) Vinyl acetate-maleic acid (8) Vinyl acetate-2-ethylhexyl acrylate (9) Vinyl acetate-G 2-ethylhexyl maleate (10) Vinyl acetate-methyl vinyl ether (11) Vinyl acetate-vinyl chloride (12) Vinyl acetate-N vinylpyrrolidone (13) Vinyl acetate-propionic-acid vinyl (14) Vinyl acetate-vinyl pivalate (15) Vinyl acetate-BASA tic acid vinyl (16) Vinyl acetate-lauric-acid vinyl (17) Vinyl acetate-stearin acid vinyl (18) Vinyl acetate-BASA tic acid vinyl-ethylene (19) -- a vinyl acetate-BASA tic acid vinyl-2-ethylhexyl acrylate (20) vinyl acetate-BASA tic acid vinyl crotonic-acid [- lauric-acid vinyl (21) vinyl-acetate-BASA tic acid vinyl-] (22) propionic-acid vinyl-BASA tic acid vinyl (23) Propionic-acid vinyl-BASA tic acid vinyl-crotonic-acid (24) pivalate-stearin acid vinyl-maleic acid [0031] In addition, GPC (the gel-permeation-chromatography method) performs measurement of the molecular weight of the high molecular compound in this specification. Calculation of number average molecular weight MN and weight average molecular weight MW is Morio Tsuge, Tatsuya Miyabayashi, and the "Chemical Society of Japan" 800 page -805 page written by Masayuki Tanaka (1972). By the method of a publication, it shall carry out by the method of leveling the peak of an oligomer field (the center of a valley being connected to the mountain of a peak).

[0032] Furthermore, in the photosensitive constituent of this invention, other high molecular compounds can also be used together as a binder. As other usable high molecular compounds, a novolak resin, the sulfoalkyl ester of an acrylic-acid (meta) (**) polymer, a vinyl-acetal (**) polymer, a vinyl ether (**) polymer, an acrylamide (**) polymer, a styrene (**) polymer, a cellulosic, etc. can be mentioned.

[0033] Next, the (b) component ("an acrylic compound" may be called suitably below) in invention of a claim 1 is explained.

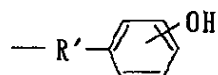
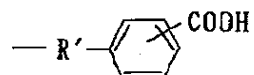
[0034] The acrylic compound which is the (b) component which can be used for this invention is the acrylic ester and the following general formula (II) preferably expressed with the following general formula (I) besides an acrylic acid and a methacrylic acid. It is the methacrylic ester expressed.

$\text{CH}_2 = \text{CH} - \text{CO} - \text{A} - \text{CO} - \text{B} \dots\dots\dots \text{(I)}$

$\text{CH}_2 = \text{C}(\text{-CH}_3) - \text{CO} - \text{A} - \text{CO} - \text{B} \dots\dots \text{(II)}$ [Formula 2]

但し A はポリエチレングリコール基： $-(OCH_2CH_2)_nO-$

B は一般式 $-R-COOH$ (R : アルキル基)



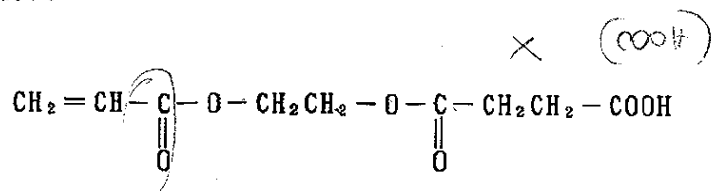
[0035] R which constitutes B -- the thing of carbon numbers 1-4 -- it is -- desirable -- 2 or 3 -- it is the thing of a carbon number 2 most preferably Moreover, although what (a carbonyl group and the benzene ring couple directly) nothing has combined with the alkyl group of carbon numbers 1-3 or the portion of R' is desirable as for R', no most desirable things are combined with the portion of R'. As for the polyethylene-glycol machine of A, a with a molecular weight of 400 or less (n is an average of nine or less) thing is used preferably.

[0036] What is marketed can be used for the above compounds. Although these are sold with the tradename with a seed, they are the following compounds when the structure expression of the main things is shown.

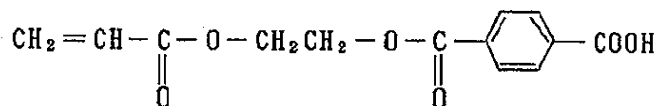
[Formula 3]

化合物例

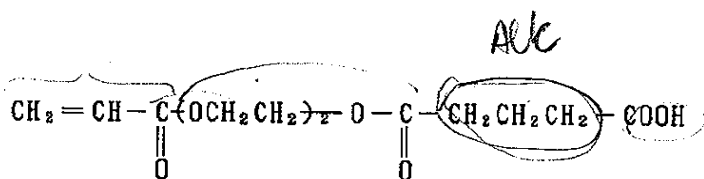
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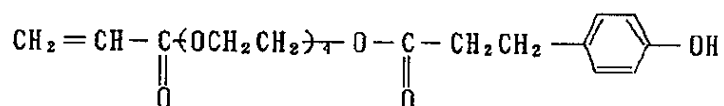
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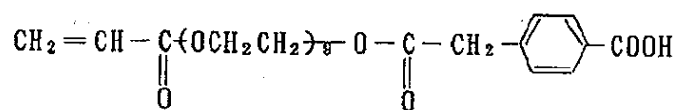
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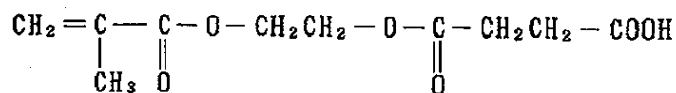


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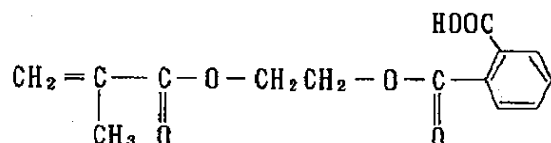


[Formula 4]

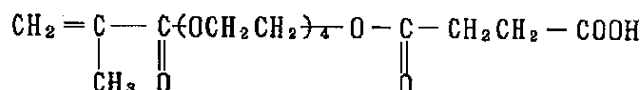
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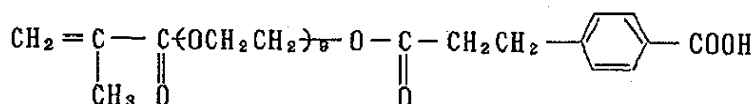
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8



9



[0037] Next, the compound (a "photopolymerization initiator" may be called suitably below) which generates a radical by optical irradiation which is the (c) component which the photosensitive constituent of invention of a claim 1 contains is explained.

[0038] Although it is arbitrary if it is the compound which is a compound which generates a radical by optical irradiation as a photopolymerization initiator which can be used for this invention and which is generally used as a photopolymerization initiator, what has the few absorption in a visible region is more desirable, and the following compound is mentioned as such a thing. However, it is not limited to these. Namely, a benzophenone, a Michler's ketone [a 4 and 4'-screw-(dimethylamino) benzophenone], A 4 and 4'-screw (diethylamino) benzophenone, a 4-methoxy-4'-dimethylamino benzophenone, 2-ethyl anthraquinone, a phenanthroquinone, and the aromatic ketones like other aromatic ketones Benzoin ether like a benzoin, a benzoin methyl ether, benzoin ethyl ether, and a benzoin phenyl ether, In a methyl benzoin, an ethyl benzoin and other benzoin, and a row, 2-(o-chlorophenyl)-4, 5-diphenyl imidazole duplicitas, 2-(o-chlorophenyl)-4, 5-(m-methoxyphenyl) imidazole duplicitas, 2-(o-fluoro phenyl)-4, 5-diphenyl imidazole duplicitas, 2-(o-methoxyphenyl)-4, 5-diphenyl imidazole duplicitas, 2-(p-methoxyphenyl)-4, 5-diphenyl imidazole duplicitas, 2, the 4-JI (p-methoxyphenyl)-5-phenyl imidazole duplicitas, 2-(2, 4-dimethoxy phenyl)-4, 5-diphenyl imidazole duplicitas, 2-(p-methyl mercapto phenyl)-4, 5-diphenyl imidazole duplicitas, And 2 like the same duplicitas U.S. Pat. No. 3,479,185, the British patent No. 1,047,569, and given in each specification of U.S. Pat. No. 3,784,557, 4, and 5-thoria krill imidazole duplicitas It can mention.

[0039] As other photopolymerization initiators, thioxan tons, such as 2 and 4-diethyl thioxan ton, can

also be used. In this case, a compound well-known as a photopolymerization accelerator, for example, p-dimethylamino isoamyl-benzoate ester, p-dimethylamino ethyl-benzoate ester, N-methyldiethanolamine, a screw diethylamino benzophenone, etc. can be used.

[0040] 70% of the weight, the rates for which each component accounts in the photosensitive constituent except the solvent are the (a) component 25 the (b) component 15 - 2 - 10 % of the weight of (c) components, and are the (a) component 40 the (b) component 20 - 3 - 7 % of the weight of (c) components 35% of the weight 60% of the weight more preferably 45% of the weight.

[0041] The photosensitive constituent of this invention can be used in order to form the coloring photosensitive layer of image formation material, or the photosensitive layer of a coloring layer and another layer. In this case, the thickness of these layers can be suitably defined with target optical density, the kind of coloring agent used for a coloring photosensitive layer, its content, etc. If it is in tolerance, resolution becomes high and picture quality has the good one where thickness, such as a coloring photosensitive layer, is possible thinner. Therefore, this thickness is 0.1 g/m² - 5 g/m² preferably. Usually it is used in the range.

[0042] When the photosensitive constituent of this invention performs layer formation, generally, application liquid is formed using a solvent and a means to paint this on a base material can be used.

[0043] Here, since this application liquid is constituted, various organic solvents can be used as a solvent. On the occasion of operation of this invention, the organic solvent which can be used as application liquid can use all well-known various organic solvents arbitrarily. As the organic solvent which can be used **, for example, n-hexane, a cyclohexane, n pentane, benzene, Hydrocarbons, such as toluene and a xylene, methyl alcohol, ethyl alcohol, Isopropyl alcohol, n-propyl alcohol, t-butyl alcohol, sec-butyl alcohol, isobutyl alcohol, n-butyl alcohol, Alcohols, such as 1-pentanol, 2-pentanol, and 1-hexanol, An acetone, a cyclohexanone, a methyl ethyl ketone, a methyl-n-propyl ketone, Ketones, such as methyl isopropyl ketone, a methyl-n-butyl ketone, and a methyl isobutyl ketone The diethylene-glycol monomethyl ether, a diethylene-glycol wood ether, Diethylene glycols, such as a diethylene glycol monoethyl ether In addition, a methyl lactate, an ethyl lactate, a methyl propionate, a methyl butyrate, Nitril, such as ester, such as ethyl acetate, an acetonitrile, and a propionitrile, other 1, 4-dioxane, a dimethylformamide, dimethyl sulfoxide and also a methylene chloride, chloroform, a carbon tetrachloride, etc. can be mentioned. It is aromatic hydrocarbons, such as benzene, toluene, and a xylene, and ketones, and ester that is preferably used in this, and it is a cyclohexanone and toluene, a methyl lactate, and a methyl ethyl ketone especially preferably.

[0044] Various kinds of organic acids and an acid anhydride can be made to contain in a photosensitive constituent on the occasion of operation of this invention. Well-known various organic acids can be mentioned as an organic acid which can be used.

[0045] as such an organic acid -- for example, a chemistry handbook basic volume -- all the organic acids indicated by the 1054-1058th page 2 II (Maruzen 1966) can be mentioned As such an organic acid **, for example, a benzoic acid, an adipic acid, an azelaic acid, an isophthalic acid, para toluylic acid, q-toluic acid, beta-ethyl glutaric acid, an m-oxy-benzoic acid, 3, 5-dimethyl benzoic acid, 3, 4-dimethoxy benzoic acid, a glyceric acid, a glutaconic acid, a glutaric acid, p-anisic-acid, cinnamic-acid, succinic-acid, acetic-acid, sebacic-acid, beta, and beta-diethyl glutaric acid, 1-cyclobutane dicarboxylic acid, 1, 3-cyclobutane dicarboxylic acid, 1, 3-cyclobutane dicarboxylic-acid, 1, and 1-cyclopentane dicarboxylic acid, 1, 2-cyclopentane dicarboxylic acid, 1, 3-cyclopentane dicarboxylic acid, beta and beta-dimethyl glutaric acid, a dimethyl malonic acid, alpha-tartaric acid, a SUPERIN acid, A terephthalic acid, a pimelic acid, a phthalic acid, a fumaric acid, a propionic acid, beta-propyl glutaric acid, beta-propyl malonic-acid, beta, and beta-methylpropyl glutaric acid, a mandelic acid, Mesotartaric-acid, methylmalonic acid, beta-methyl glutaric-acid, malic-acid, 1, and 1-cyclohexane dicarboxylic acid, 1, 2-cyclohexane dicarboxylic acid, 1, 3-cyclohexane dicarboxylic acid, 1, 4-cyclohexane dicarboxylic acid, the cis--4-cyclohexene -1, 2-dicarboxylic acid, stearin acid, an erucic acid, an undecene acid, a lauric acid, butanoic acid, n-capric acid, a pelargonic acid, an n undecane acid, etc. can be mentioned. In addition, the organic acid which has enol structures, such as a mel drum acid and an ascorbic acid, can also be used preferably.

[0046] A carbon number is a carboxylic acid and a dibasic acid with the carbon difference of 1-5, and the organic acids preferably used in this are an acetic acid and a glutaric acid still more preferably.

[0047] 0.1 - 5 % of the weight is desirable still more preferably [suitably / 0.05 - 10 % of the weight /, and] suitable for the rate for which it accounts in the photosensitive constituent of the above-mentioned organic acid.

[0048] Although the acid anhydride which can be used is arbitrary and all well-known various acid anhydrides are used It is a cyclic anhydride preferably and phthalic anhydride, tetrahydro phthalic anhydride, 3, 6-ENDOOKISHI-delta4-tetrahydro phthalic anhydride, tetrapod crawl phthalic anhydride, an anhydrous glutaric acid, a maleic anhydride, a crawl maleic anhydride, alpha-phenyl maleic anhydride, a succinic anhydride, pyromellitic acid, etc. can be mentioned as such an acid anhydride, for example.

[0049] 0.1 - 5 % of the weight is desirable still more preferably [suitably / 0.05 - 10 % of the weight /, and] suitable for the rate for which it accounts in the photosensitive constituent of the above-mentioned acid anhydride.

[0050] On the occasion of operation of this invention, plasticity, an application disposition top agent, etc. can also be further added if needed in a photosensitive constituent (or each class which uses this for image formation material and which is formed at the time [each class]).

[0051] The Nonion activator represented by a surfactant, for example, a fluorochemical surfactant, the ethyl-cellulose polyalkylene ether, etc. as a plasticizer as various low molecular weight compounds, for example, phthalic esters, triphenyl phosphate, maleates, and an application disposition top agent can be mentioned.

[0052] When it constitutes image formation material using the photosensitive constituent of this invention, the coloring photosensitive layer which consists of a photosensitive constituent, a binder, and a coloring agent may be formed, and it can also divide into two-layer [of the coloring layer which consists of a coloring agent and a binder, and the photosensitive layer which consists of a photosensitive constituent]. In this case, which layer may be arranged at the base material side.

[0053] Such an image formation material can be materialized as for example, a color proof. The coloring photosensitive layer of the image formation material in this case is removed in the shape of a picture by the development following image Mr. exposure, and forms a coloring picture. Generally this kind of image formation material is used for transferred material in the form which imprints a picture.

[0054] When applying this invention to image formation material, a heat softening mold release layer can be made to exist between a base material, a coloring photosensitive layer, etc. This layer should just be carried out at least one stratification. This layer performs efficiently the picture imprint of a up to [the transferred material in the case of being above], and makes easy ablation of the base material after a picture imprint.

[0055] Here, a heat softening mold release layer is the general term of the layer which functions as the layer which functions as a heat softening layer, and/or a mold release layer, and in case the picture formed on the base material is imprinted by transferred material, what is prepared so that this picture may exfoliate from a base material easily is named generically. For example, it is a concept containing what makes this ablation easy (a heat softening layer is called), the layer (a mold release processing layer is called) formed by carrying out mold release processing of the support surface by the oil-repellent matter etc. by softening with heat. For example, on the occasion of operation of this invention, a mold release layer can be prepared by the heat softening layer on a base material (it is desirable that a mold release processing layer is further formed on it), and the structure where a photosensitive layer is formed on this can be taken. As such a heat softening layer, it can constitute, for example from a vinyl acetate-ethylene copolymer etc. preferably.

[0056] A mold release processing layer can be formed from the polyamide resin like a silicone resin, fluororesin, polyethylene, and polypropylene ethylene-alpha olefin copolymer, a propylene-alpha olefin copolymer, an ethylene propylene rubber, an ethylene-propylene-diene copolymer, an ethylene-acrylic acid copolymer, an ethylene vinylacetate copolymer, an ionomer resin, a wax, nylon, and copolymerization nylon etc.

[0057] Moreover, even if it adds silicon resin and a fluororesin to melamine resin and a polyacrylic ester urethane resin, it can use.

[0058] Moreover, since they show a good mold-release characteristic even if they do not perform special mold release processing, a polypropylene film, a polyethylene film, etc. are thinner than the thickness of a base material as a desirable mode, can prepare a polypropylene layer or a polyethylene layer, and can use it as a mold release layer.

[0059] It is the so-called dry type laminating method which piles up a polypropylene film or a polyethylene film, sticks to the bottom of heating by pressure, and is laminated after applying these adhesives on a base material and drying by hot blast or heating as a method of preparing a polypropylene layer or a polyethylene layer on a base material, using as adhesives the solution which dissolved (1) polyvinyl acetate, a polyvinyl chloride, an epoxy resin, a polyurethane system resin, natural rubber, synthetic rubber, etc. in the organic solvent.;

[0060] (2) Use the copolymerization object of ethylene and vinyl acetate, the copolymerization object of ethylene and an acrylic ester, polyamide resin, a petroleum resin, rosin, waxes, or such mixture as adhesives, and heat these adhesives as it is. The so-called hot-melt laminating method laminated by cooling after sticking a polypropylene film or a polyethylene film and carrying out heating at high temperature if needed, maintaining at a melting state, immediately after applying on a base material by the doctor blade method, the roll coat method, the GURABIYA method, the reverse rolling method, etc.;

[0061] (3) The so-called extrusion laminating method which sticks by pressure and laminates a base material while polypropylene or polyethylene is maintained at a melting state, it extrudes in the shape of a film with an extruder and this is in a melting state;

[0062] (4) In case the film used as a base material is fabricated by the melting extrusion method, the so-called co-extrusion method which forms a polypropylene layer or a polyethylene layer on a base material film can be mentioned by one fabrication with the polypropylene of a melting state, or polyethylene using two or more sets of extruders.

[0063] Preferably, the range of 0.01-30 micrometers is suitable for mold release processing layer thickness, and the range of it is 0.1-5 micrometers especially preferably.

[0064] A heat softening layer has the property softened at the temperature at the time of hot printing, and can form it by thermoplastics. As this thermoplastics, that whose softening temperature is -30 degrees C - 150 degrees C is desirable. The softening temperature said here is the value shown with VICAT softening temperature or the ring and ball method. Specifically in this invention, the following can be mentioned as a desirable resin.

[0065] Polyolefines, such as polyethylene and polypropylene. Ethylene, vinyl acetate and ethylene, an acrylic ester and ethylene, and the ethylene copolymer like an acrylic acid. Polyvinyl chloride. The vinyl chloride copolymer like a vinyl chloride and vinyl acetate. Polyvinylidene chloride. Vinylidene-chloride copolymer. Polystyrene. The styrene copolymer like styrene and a maleic anhydride. Polyacrylic ester. Polyester resin. Polyurethane resin. The acrylic-ester copolymer like an acrylic ester and vinyl acetate. Poly methacrylic-acid ester. The methacrylic-acid ester copolymer like a methacrylic-acid methyl, vinyl acetate and a methacrylic-acid methyl, and an acrylic acid. Polyvinyl acetate. Vinyl acetate copolymer. Vinyl butyral resin. Polyamide resin like nylon, copolymerization nylon, and N-alkoxy methylation nylon. Synthetic rubber. Petroleum resin. Chlorinated rubber. Polyethylene glycol. Polyvinyl alcohol hide rosin phthalate. A cellulosic, cellulose-acetate phthalate, cellulose-acetate succinate. Shellac. Wax.

[0066] A heat softening layer can be prepared on a base material using a well-known method. Preferably, the range of 1-50 micrometers is suitable for heat softening layer thickness, and the range of it is 5-30 micrometers especially preferably.

[0067] The mold release processing layer described above on the heat softening layer can also be prepared, and the method of applying the solution which dissolved the above-mentioned resin for mold release processing stratification in the organic solvent, or the emulsion-ized thing on a heat softening layer as this method, the method of laminating a polypropylene film or a polyethylene film on a heat softening layer, etc. are mentioned.

[0068] In this invention, a heat softening mold release layer can contain lubricant.

[0069] When it constitutes coloring image formation material using the photosensitive constituent of this invention, a coloring layer or a coloring photosensitive layer can contain the coloring agent for forming a coloring picture, and various kinds of colors and a pigment can be used for it as this coloring agent. When using it for color proofreading especially, the pigment of the color tone which was in agreement with **** generally demanded there, i.e., yellow, a Magenta, cyanogen, and black, and a color are needed. Moreover, when using it for a light filter, blue, green, the pigment of red, and a color may be needed. In addition, a metal powder, white pigments, a fluorescent pigment, etc. can be used. When applying the image formation material of this invention to the color proof for for example, color picture proofreading, and other coloring image formation material, the pigment and color of well-known many can be arbitrarily used by this following technical field. The technical field concerned shows the example of some of well-known various pigments and the colors below. It is organic pigments, such as an azo system, a phthalocyanine system, a Quinacridone system, an anthraquinone system, an indigo system, and a methine system, a color, or an inorganic pigment, and the example of some of these examples is indicated below.

[0070]

(C. I. means a Color Index) .

Lemon chrome yellow M35 (C. I.77603)
 Medium chromium yellow (C. I.77600)
 MORIBU date orange (C. I.77605)
 Milori blue 671 (C. I.77510)
 Seika light blue (C. I.74200)
 Seika light rose (C. I.45160:1)
 Seika light Magenta (C. I.45170:2)
 Seika light blue (C. I.42595:2)
 Seika light violet B800 (C. I.42535:2)
 Seika first Lake Red CZA665 (C. I.15585:1)
 The Seika first red LR116 (C. I.15630:1)
 Seika first carmine six B1488 (C. I.15850:1)
 The Seika first red 8040 (C. I.15865:1)
 Seika first yellow 10GH (C. I.11710)
 The Seika first yellow GH (C. I.11680)
 The Seika first yellow 2015 (C. I.11741)
 The Seika first yellow A-3 (C. I.11737)
 The Seika first yellow 2300 (C. I.21090)
 The Seika first yellow 2200 (C. I.21095)
 The Seika first yellow 2400 (C. I.21105)
 The Seika first yellow 2600 (C. I.21100)
 The Seika first yellow 2500 (C. I.21096)
 The Seika first yellow 2720 (C. I.21108)
 The Seika first orange 2900 (C. I.21160)
 The Seika first orange 900 (C. I.21110)
 The Seika first orange 3044 (C. I.12075)
 The Seika first red 930 (B) (C. I.21120)
 Seika first Scarlett Gconc (C. I.12315)
 Seika first carmine 3840 (C. I.12490)
 Seika first carmine 3870 (C. I.12485)
 Seika farce torr bottle RK-1 (C. I.12317)
 The Seika first violet FR (C. I.12322)
 KUROMO fine blue 4920 (C. I.74160)
 KUROMO fine green 2GO (C. I.74260)

KUROMO fine yellow 5910 (C. I.20035)
 KUROMO fine orange 6726 (C. I.not listed.)
 KUROMO fine Scarlett 6750 (C. I.not listed.)
 KUROMO fine red 6820 (C. I.46500)
 KUROMO fine violet (C. I.51319)
 It is Product made from the formation of size Japanese energy above. [0071]
 SHIMURA first yellow 8GTF (C. I.21105)
 SHIMURA first yellow 4186 (C. I.11767)
 SHIMURA first yellow 4193G (C. I.21100)
 SHIMURA first yellow GHK-N4 (C. I.21090)
 SHIMURA first yellow GTF230T (C. I.not listed.)
 SHIMURA first yellow RF (C. I.21096)
 SHIMURA first yellow 4181 (C. I.21108)
 First gene super yellow GRO (C. I.56280)
 SHIMURA first pyrazolone orange G (C. I.21110)
 SHIMURA first orange V (C. I.21160)
 SHIMURA first orange 4183H (C. I.11780)
 SHIMURA Lake Red C conc 130 (C. I.15585:1)
 SIMM RANEO toll red 2BY (C. I.15565:1)
 SHIMURA red 2BS (C. I.15865:1)
 First gene super red 2Y (C. I.73905)
 First gene super red 7083Y (C. I.46500)
 SHIMURA red 3013 (C. I.15865:2)
 SHIMURA brilliant carmin 6B 246 (C. I.15850:1)
 First gene super Magenta R (C. I.73915)
 First gene super violet RNS (C. I.51319)
 First gene super blue 6016 (C. I.69800)
 First gene blue BSF-A (C. I.74160)
 First gene blue TGR-L (C. I.74160)
 First gene green S (C. I.74260)
 First gene green 2YK (C. I.74265)
 It is the Dainippon Ink make above. [0072]
 Oriental yellow GT (C. I.11680)
 Victoria pure blue (C. I.42595)
 RIONORU red seven B4401 (C. I.15830)
 RIONORU red 3901 (C. I.12120)
 RIONORU red FB5500 (C. I.12490)
 RIONORU red FBK (C. I.12490)
 No.7100 RIONORU yellow (C. I.21096)
 RIONORU yellow FG-3 (C. I.21127)
 RIONORU yellow NBR (C. I.21108)
 RIONORU yellow 1806-G (C. I.21127)
 RIONORU red 2BK (C. I.15865:4)
 RIONORU yellow K-5G (C. I.13955) (C. I.13960) RIONORU yellow K-2R
 RIONORU yellow FG-3 (C. I.21127)
 RIONO ruble 7210-V (C. I.74160)
 RIONO ruble SM (C. I.74160)
 RIONO ruble FG-7330 (C. I.74160)
 RIONO ruble SPG-8 (C. I.74160)
 RIONO ruble ESP-S (C. I.74160)
 RIONO ruble ES (C. I.74160)

RIONORU green B-201 (C. I.74260)
 RIONORU green Y-101 (C. I.74260)
 RIONORU green 6Y-501 (C. I.74160)
 RIONO gene yellow G-F (C. I.70600)
 RIONO gene yellow 3 G-F (C. I.not listed.)
 RIONO gene yellow RX-F (C. I.66280)
 RIONO gene orange R-F (C. I.11780)
 RIONO gene orange GR-F (C. I.71105)
 RIONOGEN Brown R-F (C. I.12510)
 RIONO gene red Y-F (C. I.46500)
 RIONO gene red 6 B-F (C. I.46500)
 RIONO gene red GD-F (C. I.53900)
 RIONO gene Magenta R-F (C. I.73915)
 RIONO gene violet RL-F (C. I.51319)
 RIONO gene blue R-F (C. I.69800)
 RIONO gene blue R3-F (C. I.69800)
 It is the Toyo Ink make above. [0073]

Auramine (C. I.41000)
 Carotene brilliant flavin (C. I. BASIC 13)
 Rhodamine 6G CP (C. I.45160)
 Rhodamine B (C. I.45170)
 Safranin O K 70:100 (C. I.50240)
 ERIO glaucine X (C. I.42080)
 First black HB (C. I.26150)
 Benzidine-yellow 4T-564 D (C. I.21095)

Mitsubishi carbon black MA-100 Mitsubishi carbon black #30, #40, #50 [0074] It can set to operation of this invention and the content of the coloring agent in a coloring photosensitive layer or a coloring layer can be defined in consideration of the removal nature to the developer of target optical density and a coloring photosensitive layer etc. In this invention, it is desirable especially desirable to consider as 5 - 40% of the weight of the range, and the content of a coloring agent is 10 - 30% of the weight of a range. In operation of this invention, two sorts or more than it can also be mixed and used for the pigment and color which are used as a coloring agent.

[0075] When it constitutes image formation material, the base material may consist of arbitrary material. When requiring tooth-back exposure, generally a transparent base material is used. As a base material, a biaxial-stretching polyethylene-terephthalate film is especially desirable in respect of polyester film especially a polyethylene-terephthalate film, and the dimensional stability to water and heat. In addition, an acetate film, a polyvinyl chloride film, a polystyrene film, and a polypropylene film can also be used preferably.

[0076] Image formation material can be used in the mode which imprints the picture section which exposed and developed this, formed the picture section and was this formed at least into transferred material, and obtains a transfer picture.

[0077] Next, invention of the image formation method 3, i.e., a claim, of developing negatives with a water alkali developer and acquiring a positive picture is explained after exposing the photosensitive constituent of invention of a claim 1 which gave [above-mentioned] explanation.

[0078] although it is, the developer used in order [which can expose a photosensitive constituent with a proper light according to it, can develop it after that, and can acquire a picture] to develop this in invention of a claim 3 is a water developer In this invention, a water developer means the developer which does not contain the organic solvent (the thing of a grade which does not have the functions as a thing in which the organic solvent is contained substantially -- the organic solvent of a minute amount mixes -- is included by the water developer of this invention).

[0079] The alkaline developer which uses water as a main solvent as such a developer for example,

silicic-acid alkali (a potassium silicate, a sodium silicate, and a meta-sodium silicate --) A meta-potassium silicate, silicic-acid ammonium, etc. 0.3 - 10 % of the weight, SiO₂ The developer contained 0.1 to 7.0% of the weight by concentration, and also alkali chemicals other than silicic-acid alkali, For example, a potassium hydroxide, a sodium hydroxide, a lithium hydroxide, the third sodium phosphate, Sodium diphosphate, the third potassium phosphate, the second potassium phosphate, The third ammonium phosphate, the second ammonium phosphate, a meta-sodium silicate, There is a developer which made organic alkali chemicals like inorganic alkali chemicals, such as a sodium bicarbonate, a sodium carbonate, potassium carbonate, and an ammonium carbonate, monochrome, II or a triethanolamine, and a hydroxylation tetrapod alkyl contain.

[0080] The developer which makes silicic-acid alkali a principal component in this is desirable, and it is more desirable that a silicate compound is potassium salt further.

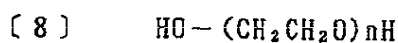
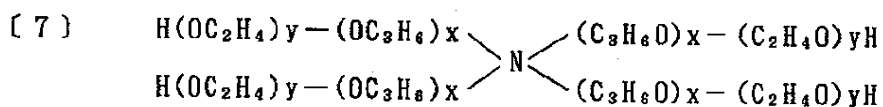
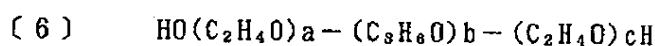
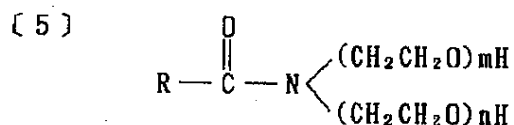
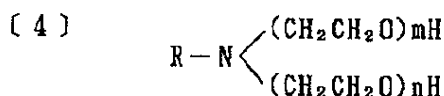
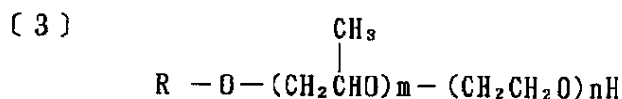
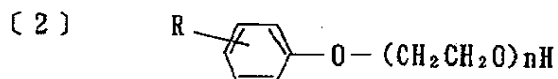
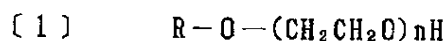
[0081] Such a developer can contain various additives according to the purpose. As an additive, there are an anion, a Nonion, a field side activator of a cation, a reducing agent, an organic carboxylic acid, etc.

[0082] As an anion type surfactant ** and higher-alcohol (about eight to 22 carbon number) sulfate salts [-- for example The sodium salt of lauryl alcohol sulfate, the sodium salt of octyl alcohol sulfate, the ammonium salt of lauryl alcohol sulfate, and "Teepol-81" (a tradename --)], such as a product made from shell chemistry, and the second sodium alkyl sulfate, and fatty alcohol phosphate For example, (the sodium salt of cetyl alcohol phosphoric ester) etc., alkylaryl sulfonates (for example, the sodium salt of dodecylbenzenesulfonic acid --) The sodium salt of an isopropyl naphthalene sulfonic acid, the sodium salt of a JINAFU thalline disulfon acid, The sulfonates of alkylamide, such as sodium salt of a meta-nitrobenzene sulfonic acid There are sulfonates (for example, sodium sulfo succinic-acid dioctyl ester, sodium sulfo succinic-acid dihexyl ester, etc.) of (C₁₇H₃₃CON(CH₃) CH₂ SO₃ Na etc. and dibasicity) fatty acid ester. [for example,]

[0083] A polyethylene-glycol type and a polyhydric-alcohol type can make both contain as a nonionic surface active agent.

[0084] As a nonionic surface active agent, the compound expressed with following general formula [1]-[8], for example is mentioned.

[Formula 5]



[0085] [1] In - [8] formula, R expresses a hydrogen atom or a univalent organic machine. As this organic machine, the alkyl group which may have the substituent {aryl groups (phenyl etc.)} of a straight chain or the carbon numbers 1-30 of branching, for example, the alkyl carbonyl group whose alkyl portion is the above-mentioned alkyl group, the phenyl group which may have substituents (for example, a hydroxyl, the above alkyl groups, etc.) are mentioned. a, b, c, m, nx, and y express the integer of 1-40 respectively.

[0086] The example of a nonionic surface active agent is shown below. A polyethylene glycol, a polyoxyethylene, the lauryl ether, The polyoxyethylene nonyl ether, the polyoxyethylene cetyl ether, Polyoxyethylene stearyl ether, the polyoxyethylene oleyl ether, Polyoxyethylenebehenyl ether, the

polyoxyethylene polyoxypropylene cetyl ether, Polyoxyethylene polyoxypropylene behenyl ether, the polyoxyethylene nonylphenyl ether, A polyoxyethylene octyl phenyl ether, a polyoxyethylene stearyl amine, A polyoxyethylene oleyl amine, polyoxyethylene octadecanamide, Polyoxyethylene oleic amide, the polyoxyethylene castor oil, Polyoxyethylene loon ethyl ether, the polyoxyethylene lanolin ether, A polyoxyethylene MONORA melon rate, polyoxyethylene monostearate, Polyoxyethylene glyceryl monochrome olate, polyoxyethylene GURISERU monostearate, Polyoxyethylene propylene-glycol monostearate, an oxyethylene oxypropylene block polymer, A JISUCHIREN-ized phenol polyethylene-oxide addition product, a tribenzyl phenol polyethylene-oxide addition product, An octyl-phenol polyoxyethylene polyoxypropylene addition product, glycerol monostearate, sorbitan monolaurate, polyoxyethylene sorbitan monolaurate, etc.

[0087] The weight average molecular weight of a nonionic surface active agent usually has the desirable range of 300-10000.

[0088] These all can be made to contain although a cationic surface active agent is divided roughly into an amine type and a quaternary-ammonium-salt type.

[0089] As an amine type example, there are polyoxyethylene alkylamine, N-alkyl propylene amine, N-alkyl polyethylene polyamine, N-alkyl polyethylene polyamine dimethyl sulfate salt, an alkyl biguanide, a long-chain amine oxide, alkyl imidazoline, 1-hydroxyethyl-2-alkyl imidazoline, 1-acetyl aminoethyl-2-alkyl imidazoline, 2-alkyl-4-methyl-4-hydroxymethyl oxazoline, etc.

[0090] Moreover, it is a quaternary-ammonium-salt type example. **, a long-chain primary amine salt, an alkyl trimethylammonium salt, a dialkyl dimethyl ethylammonium salt, An alkyl dimethyl ammonium salt, an alkyl dimethylbenzyl ammonium salt, An alkyl pyridinium salt, an alkyl KINORINIUM salt, an alkyl iso KINORINIUM salt, An alkyl pyridinium sulfate, a steer RAMIDO methyl pyridinium salt, An acylamino ethyl diethylamine salt, an acylamino ethyl MECHIRUJI ethylammonium salt, An alkylamide propyl dimethylbenzyl ammonium salt, a fatty-acid polyethylene polyamide, An acylamino ethyl pyridinium salt, an acyl KORAMINOHORUMIRU methyl pyridinium salt, A SUTEARO oxymethyl pyridinium salt, a fatty-acid triethanolamine, There are fatty-acid triethanol AMINGI acid chloride, a trioxyethylene fatty-acid triethanolamine, fatty-acid dibutylamino ethanol, a cetyl oxymethyl pyridinium salt, a p-ISOOKUCHIRUFENOKISHI ethoxy ethyl dimethylbenzyl ammonium salt, etc. (The "alkyl" in the example of the above-mentioned compound shows the straight chain or the alkyl replaced in part of carbon numbers 6-20, and, specifically, straight chain alkyls, such as a hexyl, an octyl, a cetyl, and stearyl, are used preferably.)

[0091] Moreover, in a meaning also with the large polymer which repeats a cation component and it has as a unit, it is a cationic surface active agent, for example, the polymer containing the quaternary ammonium salt obtained by copolymerizing with a lipophilic property monomer can be used suitably.

[0092] As for a surfactant, it is usually desirable to make a developer contain in 0.01 - 25% of the weight of the range.

[0093] Moreover, an anion system surfactant is desirable as these surfactants, and alkylnaphthalenesulfonate is the most desirable also in it.

[0094] Next, the photosensitive constituent of invention of a claim 2 is explained. In addition, since this constituent as well as the photosensitive constituent of invention of a claim 1 can be used and can constitute image formation material, the explanation about image formation material composition adopts the above, and omits it here.

[0095] As a quinone diazide compound which is the (A) component which the photosensitive constituent of invention of a claim 2 contains, the common quinone diazide compound used for photosensitive constituent formation can be used arbitrarily.

[0096] For example, o-quinone diazide can be mentioned. Specifically, the compound which made 1, 2-benzoquinone diazido-4-sulfonyl chloride, 1, 2-naphthoquinonediazide-4-sulfonyl chloride, 1, 2-naphthoquinonediazide-5-sulfonyl chloride, 1, and 2-naphthoquinonediazide-6-sulfonyl chloride, the hydroxyl group, and/or the amino-group content compound condense is used preferably.

[0097] As the above-mentioned hydroxyl-group content compound, there are trihydroxy benzophenone, hydroxy anthraquinone, bisphenol A, a phenol novolak resin, resorcinol benzaldehyde

condensation resin, pyrogallol acetone condensation resin, etc., for example. Moreover, as an amino-group content compound, there is an aniline, p-amino diphenylamine, p-amino benzophenone, 4, and 4-diamino benzophenone, 4, and 4-diamino diphenylamine etc., for example.

[0098] About the above-mentioned o-quinone diazide compound, J.Kosar work "Light Sensitive System" (Wiley & Sons, New York, 1965) and Matsunaga, and **** "a photosensitive macromolecule" (Kodansha, 1977) can be followed further.

[0099] The acrylic compound which is the (B) component which the photosensitive constituent of invention of a claim 2 contains is the same as the (b) component explained in invention of a claim 1. However, in invention of a claim 2, the acrylic compound which is this (B) component is contained one to 40% of the weight to 100 % of the weight of quinone diazide compounds which are the (A) component. (A) in 1 or less % of the weight, the addition effect of the (B) component is hardly seen, but the addition of a component may produce a residual membrane conversely depending on the compatibility which is the kind of (B) component, or the compound of the (A) component and the (B) component at 40 % of the weight or more (A) The addition of a component is 3 - 20 % of the weight preferably.

[0100] (B) About a component, adopt the explanation about the above-mentioned (b) component, and omit here.

[0101] The photopolymerization initiator which is the (C) component which the photosensitive constituent of invention of a claim 2 contains is the same as the (c) component explained in invention of a claim 1. Therefore, in addition to this, about the (C) component, the explanation about the above-mentioned (c) component is adopted, and it omits here. In this invention, the loadings with the desirable (C) component are 5 - 20 % of the weight to the (B) component.

[0102] Next, the photosensitive constituent of invention of a claim 2 can contain arbitrary high molecular compounds as a binder. It is good that the high molecular compound (refer to the aforementioned explanation about this) which is the (a) component contained in the photosensitive constituent of invention of a claim 1, or a novolak resin is included preferably.

[0103] When making a novolak resin contain and forming the photosensitive constituent of invention of a claim 2, although a novolak resin is obtained according to the polycondensation of at least one kind of phenols, and an activity carbonyl compound, generally it can use the arbitrary things of such a novolak resin.

[0104] At least one of the hydrogen atoms combined with the ring of aromaticity contains all the compounds replaced with the hydroxyl group, and the above-mentioned phenols are these phenols. ** -- a phenol, o-cresol, m-cresol, p-cresol, 3, 5-xyleneol, 2, 4-xyleneol, 2, 5-xyleneol, a carvacrol, Timor, a catechol, a resorcinol, a hydroquinone, pyrogallol, a phloroglucine, an alkyl group (1-8 carbon atomic numbers) substitution phenol, etc. can specifically be mentioned

[0105] An aldehyde, a ketone, etc. are contained in the above-mentioned activity carbonyl compound, and formaldehyde, an acetaldehyde, a benzaldehyde, an acrolein, a furfural, an acetone, etc. can specifically be mentioned to it.

[0106] As the above-mentioned novolak resin **, a phenol formaldehyde novolak resin, m-cresol formaldehyde novolak resin, A phenol and m-cresol formaldehyde copolycondensation object resin, a phenol and a p-cresol formaldehyde copolycondensation object resin, m-cresol and a p-cresol formaldehyde copolycondensation object resin, o-cresol and a p-cresol formaldehyde copolycondensation object resin, A phenol, o-cresol and m-cresol formaldehyde copolycondensation object resin, A phenol, o-cresol and a p-cresol formaldehyde copolycondensation object resin, a phenol, m-cresol, a p-cresol formaldehyde copolycondensation object resin, etc. can be mentioned.

[0107] A desirable novolak resin is a phenol formaldehyde novolak resin, and 3500-500, and its number average molecular weight MN are [weight average molecular weight MW / the thing of the range of 1000-200] desirable.

[0108] In addition, in the aforementioned novolak resin, a thermal cracking gas chromatography (PGC) is used as a method of checking the quantitative ratio of different phenols used for the composition. About a thermal cracking gas chromatography, the principle, equipment, and experiment conditions for

example, the edited by Chemical Society of Japan and Tsuge -- "a new experimental science lecture" -- the 19th volume and polymer-chemistry [-- the qualitative-analysis method of the novolak resin are indicated by I]474 pages - 485 etc. pages (Maruzen 1978 issue) etc., and according to a thermal cracking gas chromatography -- Morio Tsuge and Tanaka ** and Masayuki Tanaka work "analytical chemistry" - - it shall apply to the 18th volume and the method indicated by 47-52 pages (1969) correspondingly

[0109] In invention of a claim 2, when making the high molecular compound (component in invention of a claim 1 (a)) which has the carboxylic-acid vinyl-ester polymerization unit indicated to be a novolak resin (for a component (d) to be called) to a photosensitive constituent by said general formula in the molecular structure contain, it is desirable to contain in [weight ratio] $(d)/(a) = 5 / 95 - 80/20$. It is desirable in respect of deformation (dimension gap) according that it is this range to color-reproduction nature and heat, and color fastness. The ranges especially of the desirable ratio of a component (b) and (c) are $(d)/(a) = 10 / 90 - 60/40$ in a weight ratio.

[0110] Furthermore, in this invention, said high molecular compounds of various kinds of can be used as a binder used for a coloring record layer.

[0111] The development of the photosensitive constituent of invention of a claim 2 has similarly especially the desirable thing for which the aquosity developer which does not contain the organic solvent is used in invention of a claim 3.

[0112] However, although use of the organic solvent is not barred, the developer to be used has that desirable the at least 50 % of the weight of whose is water.

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